

REMARKS

Claims 4 and 12-19 are pending in the application. Claims 14-17 are withdrawn from further consideration by the Examiner.

Claims 4, 12, 13, 18, and 19 are rejected only under 35 U.S.C. 103(a).

Claims Rejections 35 U.S.C. 103

Claims 4, 12, 13, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lendlein (US 2006/0088494). The Examiner's rejection has been carefully considered.

I. Applicant argues that the Lendlein reference does not qualify as prior art.

The present application is the national stage entry of PCT/EP03/10747, filed 26 September 2003. The filing date of the international stage application is also the filing date for the national stage application (MPEP 1893.03(b)).

The US National Stage application for Lendlein has a 371 date of 12 September 2005, which is approximately two years after the effective filing date of the present application (see USPTO Public PAIR). MPEP 706.02(f)(1) I. explains the process for determining the appropriate 35 U.S.C. 102(e) date for potential references. For a US national stage application resulting from an international application, the publication date of the international application is **not** a U.S. filing date for prior art purposes under 35 U.S.C. 102(e) if the published international application is not in English. WO/2003/084491, the published application corresponding to PCT/EP2003/003735 filed on 10 April 2003, and upon which the Lindlein U.S. national stage application is based, is in German. Accordingly, Lindlein does not qualify as prior art under 35 U.S.C. 102(e).

The publication date of the International Application upon which the National Stage of Lendlein is based is 16 October 2003, which is after the effective filing date of the present application. Accordingly, Lendlein does not qualify as prior art under 35 U.S.C. 102(a).

Several foreign patent applications have been published that appear to be in the same patent family as Lendein (U.S. 2006/0088494). None of these foreign applications have a publication date earlier than the effective filing date of 26 September 2003 for the present application. Accordingly, none of these applications are valid prior art references with respect to the present application or presently claimed method.

II. The Examiner has not established a prima facie case that it would have been obvious to modify the method taught by Lendlein to include natural zein.

A. The Examiner cites the abstract and paragraph [0021] as teaching a composition used for recallable hair transformation comprising natural zein and paragraph [0024] as teaching that the composition comprises 0.1 to 15% natural zein.

The abstract in Lendlein makes no reference to zein. Paragraph [0021] reads:

[0021] The polymer segments can be chosen among natural polymers, such as, for example, segments derived from proteins or polysaccharides. Suitable are also synthetic polymer segments. Suitable natural polymer segments are proteins such as zein, modified zein, casein, gelatine, gluten, serum albumin or collagen, as well as polysaccharides such as alginate, cellulose, dextrane, pullulane or polyhyaluronic acid, as well as chitin, poly(3-hydroxyalkanoate), especially poly(ϵ -hydroxybutyrate), poly(3-hydroxyoctanoate) or poly(3-hydroxyfatty acids). Suitable are also derivatives of natural polymer segments such as alkylated, hydroxyalkylated, hydroxylated or oxidated modifications.

Taken out of context, one might argue that Lendlein teaches a composition comprising a molecule that contains polymer segments derived from proteins, polysaccharides, and synthetic polymers, with one potential polymer segment being zein.

According to the MPEP 2141.03 VI., a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). The assertion that Lendlein teaches a composition comprising natural zein is completely contradicted in view of paragraphs [0005-0007, 00014, 00019, and 00020]. Paragraphs [0005-0007] teaches "a composition, which comprises at least one crosslinkable **macromer**, which forms after cross-linking a shape-memory polymer, onto hair wherein the macromer (a.) comprises **crosslinkable areas** (segments) which are crosslinkable by means of chemical bonds and (b.) **thermoplastic areas** (segments) which are not chemically crosslinkable [emphasis added]." Paragraph [0014] teaches that the macromers are also called pre-polymers. Paragraphs [0019-0020] read as follows:

[0019] In principle, all synthetic or natural oligomers or polymers having reactive terminal groups or side chain groups, which provide the crosslinked shape-memory polymer with a suitable transition temperature T_{trans} and suitable moduli of elasticity above and below T_{trans} are suitable, wherein the terminal groups or the side chain groups are already present initially or are provided by means of a subsequent derivatization. These materials allow a crosslinking reaction using the above-identified methods. Suitable macromers are, for example, macromers having the following formula



wherein A1 and A2 designate reactive, chemically crosslinkable groups and wherein

[0020] —(X)_n- designates a divalent, thermoplastic polymer or oligomer segment. A1 and A2 are preferably acrylate or methacrylate groups. The segment —(X)_n- preferably designates a polyester segment, an oligoester segment, a polyalkylene glycol segment, an oligoalkylene glycol segment, a polyalkylene carbonate segment or a oligoalkylene carbonate segment, wherein the alkylene groups are preferably ethylene groups or propylene groups. Suitable macromonomers for the formation of thermoset polymers having shape-memory properties are oligo-(ϵ -caprolactone) or poly(ϵ -caprolactone), oligolactide or polylactide, oligoalkylene glycol, polyalkyleneglycol, e.g., polyethylene glycol or their block copolymers, wherein the polymers or oligomers possess at least two ethylenically unsaturated groups, which can be polymerized by means of a radical reaction, e.g., acrylates or methacrylates, wherein these groups are provided at a terminal position or at any side chain position.

When read in its full context, Lendlein clearly teaches that polymer segments, one of which may be zein, are incorporated into macromonomers that are subsequently incorporated into a hair treatment composition.

B. According to MPEP 2143.03, all words in a claim must be considered. The rejected claims recite "natural zein." MPEP 2111.01 III specifies that the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention. The assertion that "natural zein" encompasses a macromer that might contain zein as a polymer segment covalently linked to other molecular species directly contradicts the ordinary and customary meaning of "natural zein."

The assertion that Lendlein teaches or suggests a hair treatment composition comprising "natural zein" is roughly equivalent to an assertion that a reference teaching paper made of cellulose teaches a composition made of glucose. While paper is made of cellulose, which is a polymeric form of covalently linked glucose molecules, one of

skill in the art would not consider paper to be made of glucose because glucose is understood to mean the molecule glucose and not any molecule containing a glucose moiety. Glucose and cellulose have different chemical and physical properties as do natural zein and macromers which might contain zein as a polymer segment covalently linked to other molecular species.

C. MPEP 2144.08 states that the Examiner must consider any teaching or suggestion in the reference of a preferred species or subgenus that is significantly different in structure from the claimed species or subgenus. Such a teaching may weigh against selecting the claimed species or subgenus and thus against a determination of obviousness. See also MPEP 2144.05.

Lendlein, paragraph [0020] teaches that polymer segments of larger macromers can be selected from the generic pool of any protein or protein segment, any polysaccharide or polysaccharide segment, any synthetic polymer or synthetic polymer segment, or derivatives of any of the foregoing. One of ordinary skill reading Lendlein would have been appreciated that, from among millions of possible species, Lendlein clearly prefers synthetic polymers over natural ones and polyesters in particular (paragraph [020] and claims 5, 6, 9, and 10). Consequently, it is not *prima facie* obvious that one of ordinary skill in the art would have been motivated to select the species of natural zein from among the almost limitless genus of polymers, polymer segments, and their derivatives, especially in view of Lendlein's clear preference for particular synthetic polymers.

D. A *prima facie* case of obviousness based on structural similarity is rebuttable by proof that the claimed compounds possess unexpectedly advantageous or superior properties (MPEP 2144 VII). Applicant filed a declaration on 03 July 2008 supporting the unexpected benefits associated with using natural over its hydrolyzed counterpart. Even if one were to incorrectly accept that Lendlein teaches a composition that may contain zein as one of many thousands of possible polymers and oligomers, one of ordinary skill in the art would not have been motivated to select natural zein in particular

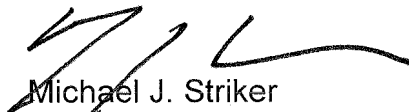
because Lendlein teaches equivalency natural zein and hydrolyzed zein in line 5 of paragraph [00021].

In view of the foregoing arguments, Applicant respectfully requests that the rejection of claims 4, 12, 13, 18, and 19 under 35 U.S.C. 103(a) as being unpatentable over Lendlein be withdrawn and that claims 4, 12, 13, 18, and 19 be allowed.

Conclusion

The application in its amended state is believed to be in condition for allowance. Action to this end is courteously solicited. Should the Examiner have any further comments or suggestions, the undersigned would very much welcome a telephone call in order to discuss appropriate claim language that will place the application into condition for allowance.

Respectfully Submitted,



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